



Summary of Fishery Surveys Hulls Lake, Taylor County, 2016

WDNR's Fisheries Management Team from Park Falls completed fyke netting and electrofishing surveys in 2016 to assess the status of important fish populations in Hulls Lake. Fyke netting about 10 days after the spring thaw targeted walleye, muskellunge, northern pike, and yellow perch. We hope that spring nets will represent black crappie population status as well as fall fyke netting, our traditional assessment method for crappies. A late-spring electrofishing survey documented the abundance and size structure of largemouth bass and bluegill populations. Quality, preferred, and memorable sizes referenced in this summary are based on standard proportions of world record lengths developed for each species by the American Fisheries Society. "Keeper size" is our own description applied to bluegill ≥ 7 inches long and black crappie ≥ 9 inches long, based on known angler behavior.

Survey Effort

On April 20, 2016 when water temperature was 55°F, we set four fyke nets at locations chosen to intercept early spring spawners and fished them for 48 hours before tallying their total catch. Comparing optimal spawning water temperatures with those measured daily at each netting site, our survey probably occurred after the peak spawning activities of most targeted species. We reduced our netting effort from eight to six net-nights because more than a few fish likely escaped through the large holes muskrats made below the waterline in one near-empty net. The 70°F water temperature in our June 1 electrofishing circuit was within the range of largemouth bass and bluegill spawning activities. We sampled the combined shoreline (2.48 miles) of Hulls Lake and the connected, 6-acre unnamed lake in 1.23 hours, including 0.50 mile of Hulls Lake subsampled for all species in 0.27 hour.

Habitat Characteristics

Hulls Lake is a 70-acre drainage lake, located about 15 miles northwest of Medford, WI. An unnamed stream drains to Paradise Creek, a tributary to the Black River. Average depth is 9 feet, and maximum depth is 35 feet. Water color has a moderate brown stain (Secchi depth = 3.7 feet). Around the perimeter, lakebed materials are equally distributed as gravel and muck, supporting submergent and emergent vegetation in moderate density. About 50% of the shoreland is upland hardwood forest, and the remainder is tamarack/tag alder swamp. Several lakeshore residents operate small-scale aeration systems to maintain open water where atmospheric oxygen can dissolve to lessen the risk and severity of winterkill—fish mortality caused by oxygen depletion in ice-covered seasons. In 2009 the Taylor County Sportsmans Association installed 27 log fish cribs. A public boat landing is located on the west shore.

Summary of Results

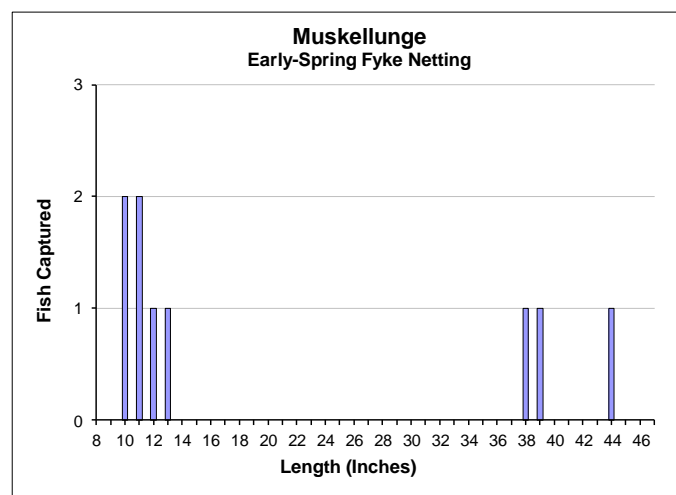
We captured 13 fish species in our netting and electrofishing surveys. Largemouth bass were the principal predators. Bluegills and black crappies were the most common panfish. Spring fyke nets captured four walleyes 25-28 inches long—our only survival measure for the 2,820 large fingerling walleyes stocked initially in 2006 and annually in 2010-2015 to offer bonus angling opportunity and help control bluegill numbers by predation. Netting also captured one 33-inch northern pike. Pike had been stocked annually in 1989-2000 as fry or small fingerlings, but those efforts did not create a pike fishery, nor did they reduce panfish abundance as hoped.

Muskellunge



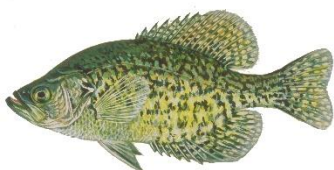
Early Spring Fyke Nets

Captured 0.5 per net-night $\geq 20"$	
Quality Size $\geq 30"$	100%
Preferred Size $\geq 38"$	100%
Memorable Size $\geq 42"$	33%



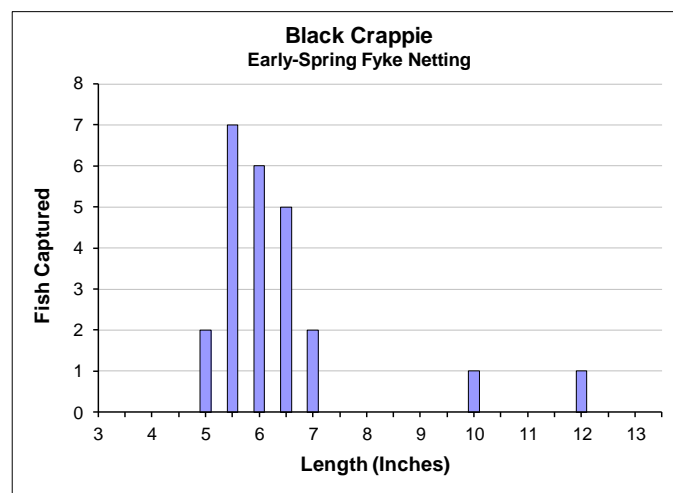
In our brief spring netting survey we captured muskellunge at a rate that represents low to moderate adult population abundance. The three adults were of satisfactory size for a 70-acre lake with the longest at 44 inches. Muskies captured in earlier surveys suggest that the Hulls Lake population probably originated from unauthorized introduction(s) and has since been maintained by low levels of natural recruitment. The only documented muskellunge stocking occurred in fall 2015 when a local sportsman's group received a permit to purchase and plant 18 fingerlings averaging 12 inches long. However, to follow WDNR's guidelines for muskellunge brood stock management we will no longer approve applications to plant muskies into Hulls Lake and other waters within the species' native range. Upon removing our nets, we found five juvenile muskellunge 10.5–13.5 inches long entangled in the mesh. These young fish (included in our catch statistics) probably are a mix of naturally-produced and stocked fish. As long as adult population density remains low, muskellunge should continue to reach the 40- to 45-inch range and serve as a top predator in Hulls Lake, even without future stocking.

Black Crappie



Early Spring Fyke Nets

Captured 4.0 per net-night $\geq 5"$	
Quality Size $\geq 8"$	8%
Preferred Size $\geq 10"$	8%
Memorable Size $\geq 12"$	4%



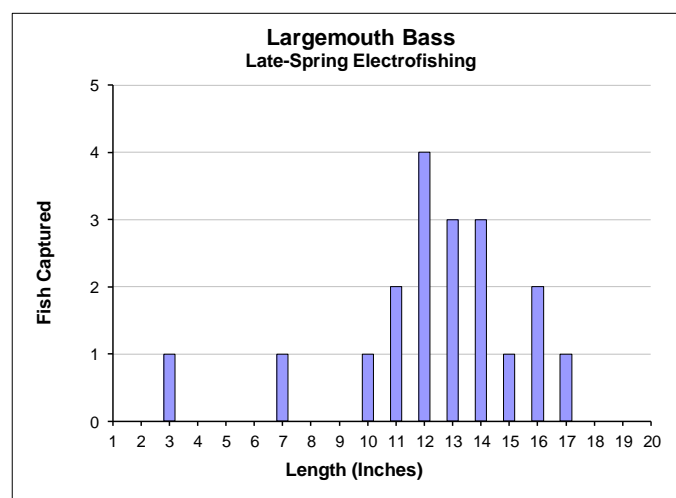
We did not use our traditional method, fall fyke netting, to assess black crappies in Hulls Lake, but capture rates and length distribution of crappies in spring netting and electrofishing surveys point toward a population in low abundance with poor size structure. Late-spring electrofishing captured only five black crappies 4.5 – 6.5 inches long. Crappie abundance often fluctuates in cycles due to highly variable production and high angling exploitation when strong year classes grow to the sizes that anglers like to keep. We did not analyze growth rate, but Hulls Lake appears to have produced a moderately strong year class of black crappies (probably in 2013) that were 5–7 inches long in our samples. At low abundance with satisfactory growth rate (presumed) and demonstrated potential to exceed 10 and 12 inches, at least some individuals from that strong year class should reach preferred and memorable sizes.

Largemouth Bass



Late Spring Electrofishing

Captured 6.9 per mile or 14 per hour $\geq 8"$	
Quality Size $\geq 12"$	82%
Legal Size $\geq 14"$	41%
Preferred Size $\geq 15"$	24%



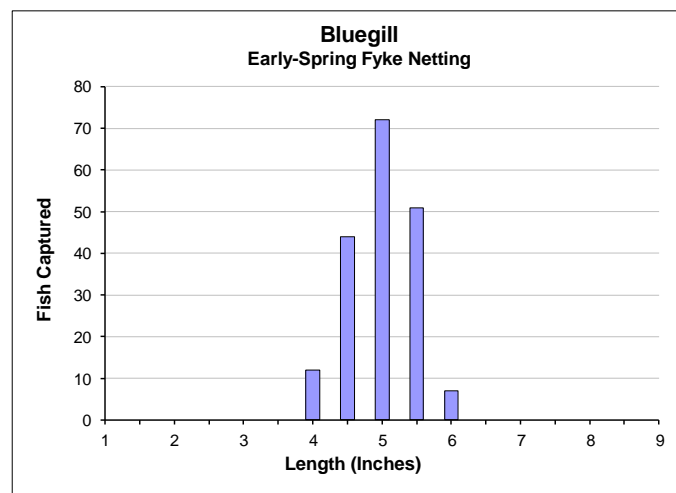
Our capture rate of largemouth bass by late-spring electrofishing indicates low to moderate population abundance. At relatively low density, size structure was respectable with 41% of the bass 8 inches or longer attaining legal size for harvest (≥ 14 inches) and nearly 18% at least 16 inches long. Although we did not take bony structures for age estimation, we suspect that largemouth bass grow near the average rate among northern Wisconsin populations. Largemouth bass were the most abundant predator in Hulls Lake, yet bass appear to be incapable of controlling bluegill abundance by predation.

Bluegill



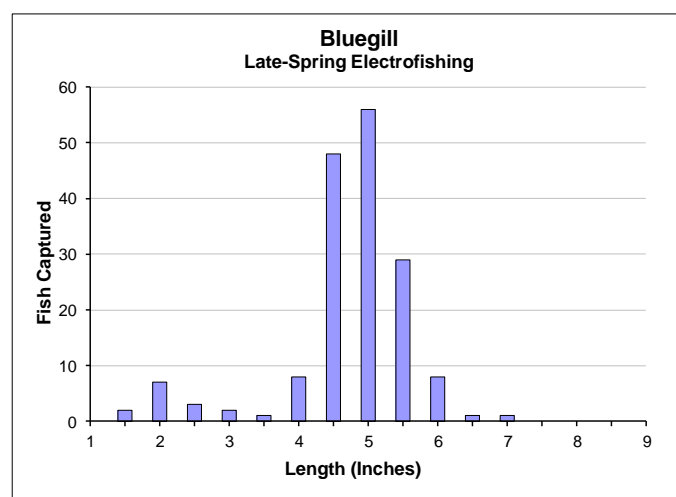
Early Spring Fyke Nets

Captured 31 per net-night $\geq 3"$	
Quality Size $\geq 6"$	4%
Keeper Size $\geq 7"$	0%
Preferred Size $\geq 8"$	0%



Late Spring Electrofishing

Captured 308 per mile or 570 per hour $\geq 3"$	
Quality Size $\geq 6"$	6%
Keeper Size $\geq 7"$	0.6%
Preferred Size $\geq 8"$	0%



Capture rates and length distributions in large electrofishing and netting samples revealed a bluegill population with high abundance and very poor size structure. Although we did not analyze bluegill length at age, we suspect the population is so crowded, the struggle for food is so intense, and growth is so slow that very few bluegills reach quality size and no bluegills reach preferred size in their lifetime. We had hoped that stocking large walleye fingerlings annually would supplement predatory pressure enough to control bluegill recruitment, eventually reducing bluegill abundance and food competition, improving their growth rate, and increasing the proportions of quality- and keeper-size fish. Six years after initiating that strategy, walleye abundance is very low, while bluegill numbers remain very high. It is doubtful that stocking walleyes at a rate higher than we did (average = 6 large fingerlings/acre; range 2–10) will result in fewer and larger bluegills, so the prospects for good bluegill fishing in Hulls Lake appear bleak.

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Written by: Chad Leanna—Fishery Technician, December 2016.

Edited by: Jeff Scheirer—Fishery Biologist, January 6, 2017.

Reviewed by: Steve Gilbert, Woodruff Field Unit Supervisor, January 25, 2018.

Approved for web posting by: Mike Vogelsang—Northern Administrative District Supervisor, January 29, 2018.

LAKE SURVEY MAP

MILLS
LAKE
TOWNSHIP
COUNTY
SEC. 20.29 T. 32 N. R. 1 W.



19 20
30 29
Perkinstown 6 Miles

D.N.R. B.M. "X" is a lag bolt in base of a 18" elm tree, located 100' West of waters edge and 25' North of access road on the West side of the lake.
Assumed Elevation=100.00'
Water Level=83.24'

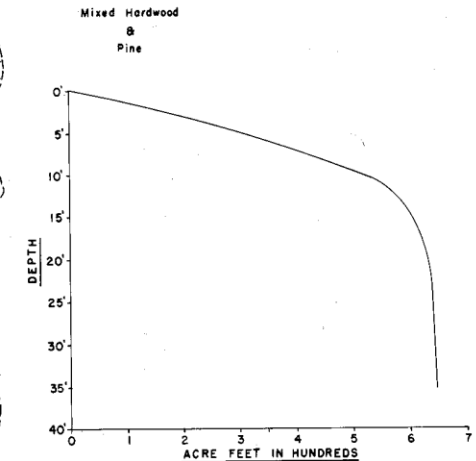
Mixed Hardwood
&
Pine

0.3 Acres
18' Max. Depth
Leatherleaf
Tamarack
Tagelder

Paradise Creek

Mixed Hardwood
&
Pine

U.S.A.



EQUIPMENT RECORDING SONAR MAPPED JULY 1973

TOPOGRAPHIC SYMBOLS		LAKE BOTTOM SYMBOLS	
(B) Brush	Steep slope	P. Peat	B. Boulders
(PW) Partially wooded	----- Indefinite shoreline	Mk. Muck	Stumps & Snags
(W) Wooded	----- Marsh	C. Clay	Rock danger to navigation
(C) Cleared	----- Spring	M. Marl	T. Submergent vegetation
(P) Pastured	----- Intermittent stream	Sd. Sand	J. Emergent vegetation
(A) Agricultural	===== Permanent inlet	Sl. Silt	Floating vegetation
B.M. Bench Mark	===== Permanent outlet	Gr. Gravel	Brush shelters
■ Dwelling	----- Dam	R. Rubble	
■ Resort	----- D.N.R. State owned land	Bc. Bedrock	
■ Camp			

U.S.A.

300' 0' 300' 600' 900' 1200'

Access Access with Parking Boat Livery

Drawn by: G. Thuesen
Field work by: C. Busch, K. Cable, L. Sather

SPECIES OF FISH		Abundant	Common	Present
Muskie				
N. Pike				
Walleye				
L. M. Bass				
S. M. Bass				
Panfish				
Trout				

WATER AREA 69.60 ACRES
UNDER 3 FT. 21 %
OVER 20 FT. 2 %
MAX. DEPTH 35' FEET
TOTAL ALK. 21 P.P.M.
VOLUME 644.0 ACRE FT.
MAIN SHORELINE 2.53 MI.
ISLAND SHORELINE 0 MI.